IN THE CLAIMS

The presently pending claims are reproduced below for convenience. The claims are not amended in the present paper.

Claim 1 (Previously Presented): A membrane, comprising:

a sheetlike flexible substrate having a multiplicity of openings and having a porous coating on and in said substrate, said coating comprising an adhesion promoter and one or more inorganic components,

wherein the material of said substrate is a nonwoven polymeric fiber selected from the group consisting of a poly-acrylonitrile fiber, a polyamide fiber, a polyimide fiber, a poly-acrylate fiber, a polytetrafluoroethylene fiber, a polyester fiber, a polyolefin fiber and mixtures thereof, said material having a porosity of more than 50%, said substrate being from 10 to 200 μm in thickness and said coating being a porous ceramic coating,

wherein the adhesion promoter is at least one of a glycidyloxy-functionalized silane and a methacryloyloxy-functionalized silane.

Claim 2 (Canceled).

Claim 3 (Previously Presented): The membrane of claim 1, wherein said nonwoven includes said polymeric fiber, which is from 1 to 25 μm in diameter.

Claim 4 (Previously Presented): The membrane of claim 1, wherein the porosity of said substrate is in the range from 50 to 97%.

Claim 5 (Previously Presented): The membrane of claim 1, wherein said coating on and in said substrate comprises an oxide of a metal selected from the group consisting of Al, Zr, Si, Ti, Y and mixtures thereof.

Claim 6 (Canceled).

Claim 7 (Previously Presented): The membrane of claim 1, wherein said membrane has an average pore size in the range of from 10 to 2000 nm.

Claim 8 (Previously Presented): The membrane of claim 1, wherein said membrane has a tensile strength of more than 1 N/cm.

Claim 9 (Previously Presented): The membrane of claim 1, wherein said membrane is bendable around a radius down to 100 mm without damage.

Claim 10 (Previously Presented): The membrane of claim 1, wherein said membrane is bendable around a radius down to 2 mm without damage.

Claim 11 (Previously Presented): A process for producing a membrane as claimed in claim 1 comprising providing a substrate from 10 to 200 μm in thickness, selected from the group consisting of nonwovens of polymeric fiber, natural fiber and mixtures thereof having a porosity of more than 50%, with a coating, said coating being a porous ceramic coating which is brought onto and into said substrate by applying a suspension and heating one or more times to solidify said suspension on and in said substrate, said suspension comprising at

least one oxide of a metal selected from the group consisting of Al, Zr, Si, Ti, Y and mixtures thereof and a sol.

Claim 12 (Original): The process of claim 11, wherein said suspension is brought onto and into said substrate by printing on, pressing on, pressing in, rolling on, knifecoating on, spreadcoating on, dipping, spraying or pouring on.

Claim 13 (Canceled).

Claim 14 (Previously Presented): The process of claim 11, wherein said suspension comprises at least one metal oxide sol, at least one semimetal oxide sol or at least one mixed metal oxide sol or a mixture thereof and is prepared by suspending at least one inorganic component in at least one of these sols.

Claim 15 (Original): The process of claim 14, wherein said sols are obtained by hydrolyzing at least one metal compound, at least one semimetal compound or at least one mixed metal compound using water or an acid or a combination thereof.

Claim 16 (Previously Presented): The process of claim 14, wherein said sol comprises less than 50% by weight of water and/or acid.

Claim 17 (Previously Presented): The process of claim 15, wherein said metal compound hydrolyzed is at least one metal alkoxide compound or at least one semimetal alkoxide compound selected from alkoxide compounds of the elements selected from the group consisting of Zr, Al, Si, Ti, Y and mixtures thereof or at least one metal nitrate, metal

carbonate or metal halide selected from metal salts of the elements selected from the group consisting of Zr, Al, Si, Ti, Y and mixtures thereof .

Claim 18 (Previously Presented): The process of claim 14, wherein said inorganic component suspended is at least one oxide selected from the oxides of the elements selected from the group consisting of Y, Zr, Al, Si, Ti and mixtures thereof.

Claim 19 (Previously Presented): The process of claim 11, wherein the mass fraction of said suspended component is from 0.1 to 500 times that of the sol used.

Claim 20 (Previously Presented): The process of claim 11, further comprising adding an adhesion promoter to said suspension.

Claim 21 (Previously Presented): The process of claim 11, further comprising adding an adhesion promoter on said fibers prior to said applying of said suspension.

Claim 22 (Previously Presented): The process of claim 20, wherein said adhesion promoter is selected from the organofunctional silanes and/or the oxides of the elements selected from the group consisting of Zr, Al, Si, Ti and mixtures thereof.

Claim 23 (Canceled).

Claim 24 (Previously Presented): The process of claim 11, wherein said suspension present on and in the support is solidified by heating at from 50 to 350°C.

Claim 25 (Original): The process of claim 24, wherein said heating is effected at from 110 to 280°C for from 0.5 to 10 minutes.

Claim 26 (Previously Presented): A method for producing batteries comprising placing a membrane as claimed in claim 1 in a battery as a separator.

Claim 27 (Previously Presented): A method comprising utilizing a membrane as claimed in claim 1 as a carrier for ultra-filtration, nanofiltration, reverse osmosis, gas separation or pervaporation membranes.

Claim 28 (Previously Presented): A method for microfiltration comprising placing a membrane as claimed in claim 1 in a microfiltration device.

Claim 29 (Canceled).

Claim 30 (Previously Presented): The process of claim 15, wherein said sol comprises less than 50% by weight of water and/or acid.

Claim 31 (Previously Presented): The process of claim 21, wherein said adhesion promoter comprises at least one oxide of the elements selected from the group consisting of Zr, Al, Si, Ti and mixtures thereof.

Claim 32 (Previously Presented): The membrane of claim 1, wherein the polymeric fiber is a polyacrylonitrile fiber.

Claim 33 (Previously Presented): The membrane of claim 1, wherein the polymeric fiber is a polyamide fiber.

Claim 34 (Previously Presented): The membrane of claim 1, wherein the polymeric fiber is a polyimide fiber.

Claim 35 (Previously Presented): The membrane of claim 1, wherein the polymer fiber is a polyacrylate fiber.

Claim 36 (Previously Presented): The membrane of claim 1, wherein the polymeric fiber is polytetrafluoroethylene fiber.

Claim 37 (Previously Presented): The membrane of claim 1, wherein the polymeric fiber is polyester fiber.

Claim 38 (Previously Presented): The membrane of claim 1, wherein the polymeric fiber is a polyolefin fiber.

Claim 39 (Canceled).

Claim 40 (Previously Presented): The membrane of claim 1, wherein the adhesion promoter is at least one selected from the group consisting of 3-glycidyloxytrimethoxysilane and 3-meth-acryloyloxypropyltrimethoxysilane.

Claims 41-45 (Canceled).

Claim 46 (Previously Presented): The membrane of claim 1, wherein the substrate consists of one nonwoven polymeric fiber.

Claim 47 (Previously Presented): The membrane of claim 1, wherein the adhesion promoter is a glycidyloxy-functionalized silane.

Claim 48 (Previously Presented): The membrane of claim 1, wherein the adhesion promoter is a methacryloyloxy-functionalized silane.

Claim 49 (Previously Presented): The membrane of claim 1, wherein the nonwoven polymeric fiber has a softening temperature of 100°C or more.

Claim 50 (Previously Presented): The membrane of claim 1, wherein the adhesion promoter is 3-glycidyloxytrimethoxy silane.

Claim 51 (Previously Presented): The membrane of claim 1, wherein the adhesion promoter is 3-methacryloyloxy propyltrimethoxy silane.

Claim 52 (Canceled).

Claim 53 (Previously Presented): A membrane, comprising:

a sheetlike flexible substrate having a multiplicity of openings and having a porous coating on and in said substrate, said coating consisting of a homogeneous mixture of an adhesion promoter-containing composition and one or more inorganic oxide components,

wherein the material of said substrate is a nonwoven polymeric fiber selected from the group consisting of a poly-acrylonitrile fiber, a polyamide fiber, a polyimide fiber, a poly-acrylate fiber, a polytetrafluoroethylene fiber, a polyester fiber, a polyolefin fiber and mixtures thereof, said material having a porosity of more than 50%, said substrate being from 10 to 200 μm in thickness, and said coating being a porous ceramic coating,

wherein the adhesion promoter-containing composition is a reaction product of a mixture that consists of water, HCl, ethanol, tetraethoxy silane, methyltrimethoxy silane and at least one of a glycidyloxy-functionalized silane and a methacryloyloxy-functionalized silane.

Claim 54 (Previously Presented): The membrane of claim 53, wherein said nonwoven includes said polymeric fiber, which is from 1 to 25 μm in diameter.

Claim 55 (Previously Presented): The membrane of claim 53, wherein said membrane has an average pore size in the range of from 10 to 2000 nm.

Claim 56 (Previously Presented): The membrane of claim 53, wherein said membrane is bendable around a radius down to 100 mm without damage.

Claim 57 (Previously Presented): The membrane of claim 53, wherein said membrane is bendable around a radius down to 2 mm without damage.

Claim 58 (Previously Presented): The membrane of claim 53, wherein the adhesion promoter-containing product consists of reacted units of the water, the tetraethoxy silane, the methyltrimethoxysilane and at least one of the 3-glycidyloxytrimethoxysilane and the 3-meth-acryloyloxypropyltrimethoxysilane.

Claim 59 (Previously Presented): A process for producing the membrane claimed in claim 53, comprising:

contacting the substrate with a sol comprising the adhesion promoter and the inorganic oxide components to coat the substrate with the sol,

heating the substrate coated with the sol to dry the sol on and in the substrate and form the coating.